* NOTICES *

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3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] Especially this invention relates to the motor bicycle which carried the navigation system using pocket mold information machines and equipment (hereafter referred to as "PDA") about a navigation system loading mold motor bicycle.
[0002]
[Description of the Prior Art] The present location of a car is displayed on a map combining map information and the location detection equipment (GPS) using a satellite electric wave, and the navigation system to which it was made to carry out advice to the destination is used widely. Although the navigation system for cars was conventionally used mainly for the wagon, carrying in a motor bicycle in recent years is also examined. For example, in the motor bicycle which carried the navigation system, the motor bicycle which considered the fitting location of a direction sensor so that it might be easy to receive a satellite electric wave is proposed by JP,9-95276,A. Moreover, in the navigation system indicated by this official report, an awning plate and covering which can be opened and closed are prepared in the display unit.
[0003]
[Problem(s) to be Solved by the Invention] In order to carry the conventional navigation system suitable for a motor bicycle, there is still the following trouble. First, generally as for a motor bicycle, the tooth space in which a navigation system is carried since it is smaller than a wagon is restricted [1st] severely. With a motor bicycle, a navigation system is carried [2nd] in the condition of having exposed to the open air.
[0004] That is, the conventional navigation system is large-sized as an object for motor bicycles, and, moreover, neither a helicopter loading site nor an approach was considered enough. Therefore, in addition, amelioration was desired in respect of the conspicuousness of the display screen, protection against dust, water proof, etc.
[0005] This invention aims at offering the motor bicycle which carried the navigation system which solved the above-mentioned technical problem and raised availability.
[0006]
[Means for Solving the Problem] The GPS sensor which this invention for attaining the above-mentioned object receives a GPS Satellite electric wave, and outputs positioning data, The instrument panel of the car prepared in the front face of a car body and the display unit which displays navigation information on a display panel based on said positioning data are provided. The 1st description is that it supported into the car body free [rotation] between the 2nd location to which the 1st location and screen which were set up in said display unit so that the screen might become abbreviation parallel in the face of a board of said instrument panel were evacuated at an angle of the schedule to said instrument panel.
[0007] Moreover, while this invention installs said display unit on said instrument panel, in said 1st location, the screen of said display unit starts along with said instrument panel, and the 2nd description

is supported by the car body so that the screen of said display unit might be suitable caudad along the top face of said instrument panel in said 2nd location.
[0008] Furthermore, this invention has the 3rd description in the point that said box is supported by the car body free [position change] between said 1st location and the 2nd location while said display unit consists of a box which can hold PDA which can offer the navigation information based on said positioning data with a display panel, and a system controller to which relay said positioning data to PDA held in said box, and navigation actuation is made to perform.
[0009] Since there is a display unit on which navigation information is displayed along the face of a board of an instrument panel in the 1st location according to the 1st and 2nd descriptions of the above, navigation information can be recognized with the same sensation as an operator looks at an instrument panel. Moreover, since a display unit is rotated by the include angle of a schedule to an instrument panel in the 2nd location, when acquiring navigation information, the perimeter of an instrument panel simplifies at the time of except.
[0010] According to the 3rd description, PDA can constitute the important section of the display unit of navigation information. And a car body can be made to support the box which holds PDA free [position change] between the 1st and 2nd locations. That is, based on the positioning data detected by the GPS sensor, navigation information can be displayed using the function of PDA. And since PDA can be held and used for a box, protection against dust and the water proof effectiveness are expectable. Moreover, since desorption is free for PDA to a motor bicycle, when not using it for navigation through a box, it can be demounted and carried from a motor bicycle for [for theft prevention] applications other than navigation.
[0011]
[Embodiment of the Invention] Hereafter, this invention is explained with reference to a drawing. A suitable motor bicycle side elevation for drawing 2 to apply the navigation system of this invention and drawing 3 are these important section perspective views. The motor bicycle (henceforth a "motor scooter") 1 of a motor-scooter mold has the double cradle mold car-body frame 2 prolonged in the cross direction of a car body. The front wheel 5 is attached at the head of a front fork 4 at which the head tube 3 was caudad prolonged from the mounting eclipse and the head tube 3 in the front end of the car-body frame 2. As for the front wheel 5, the upper part is covered by the front fender 6. The handle 7 is being fixed to the upper part of a front fork 4, and it is covered with the handle covering 33 made into order 2 ****s before and after the handle 7.
[0012] The windscreen 34 of transparence is formed in handle SUBA 33 through the stay which is not illustrated, and the screen garnish 35 as a covering member is formed in the front lower part of a windscreen 34. The PDA hold box (only henceforth a "box") 100 in which PDA (it mentions later for details) used for navigation systems can be held is established in the handle covering 33. The box 100 is supported to revolve free [a splash] in the arrow-head NA direction.
[0013] In the cradle tooth space surrounded in each pipe of the car-body frame 2, a fuel tank 8, the reserve tank 9 for RAJIETA, and RAJIETA 10 are formed, and the power unit 12 which equipped anterior part with the water cooled engine 11 is formed behind the cradle tooth space. The power unit 12 is attached in the car-body frame 2 free [a splash], after the anterior part was carried out by the link mechanism 13 and the suspension of the back end section has been carried out by the rear shock absorber 14, respectively. As for a mounting eclipse and the car-body frame 2, a rear wheel 15 is covered with the back of a power unit 12 with the body covering 17, and the sheet 16 is arranged in the backward upper part of the car-body frame 2.
[0014] The body covering 17 forms [the anterior part of a head tube 3, and the upper part of a front wheel 5] the anterior part for the back of the wrap front cover 21 and a front cover 21 with the wrap inner covering 22. The step floor 23 of the right and left by which an operator puts a guide peg on back from the inner covering 22 was prolonged, and the floor skirt board 24 is prolonged from the rim of the step floor 23 to the lower part. It is the undershirt covering 25 between the margo inferior of the floor skirt board 24, and the center of straight side of the car-body frame 2 is covered, respectively with the center covering 26 prolonged from the inner covering 22 to back. The back both-sides side of the car-

body frame 2 is covered by the side cover 27 prolonged from the center covering 26 to back. ROASA of the right and left to the lower part from the rim of a side cover 27 -- the id -- covering 28 -- extending -- the back end lower part of the car-body frame 2 -- ROASA -- the id -- it is covered with the rear center covering 29 prepared behind covering 28. The back end upper part of the car-body frame 2 is covered with the rear upper covering 30 prepared above the rear center covering 29.

[0015] The front cover 21 is equipped with the head lamp 41 and the blinker light 42. Furthermore, MPU111 as a system controller which controls the GPS sensor 110 and navigation system which receive the GPS Satellite electric wave for navigation systems to a front cover 21, and output positioning data is arranged. In addition, a location which does not become not only car-body anterior part but a figure, for example, rear upper covering 30 grade, and the car-body back may be equipped with the GPS sensor 110 (sign 110a). Wind holes 35a and 35a are formed in the screen garnish 35, and the transit wind along the front face of a front cover 21 flows upwards, and is led to wind holes 35a and 35a.

[0016] The lid 43 for oiling and the lid 44 for ignition plug inspection are formed in some center coverings 26. the grandstand 45 prepares in the lower part of a car body -- having -- ROASA -- the id -- the air cleaner 46 is formed in the interior of covering 28. Moreover, the rear grip 47, the tail lamp 48, and the rear fender 49 are formed in the back of a car body, respectively.

[0017] Drawing 4 is system configuration drawing of a navigation system. The GPS sensor 110 and PDA200 held in a box 100 are connected to MPU111 as a system controller which carries out the centralized control of the navigation actuation. In addition, PDA is known as gestalt information machines and equipment for the individuals who have the function to build in and retrieve the information on the large quantity of the function to manage an individual schedule etc., the display-panel function, in which a pen input is possible, a dictionary, a manual, etc., and makes it possible to use these functions as a navigation function by storage and retrieval of map information with this operation gestalt. A change and scrolling of the display screen of PDA200 are made to perform in a box 100, or the switch 102 for carrying out cutback and amplification of a map is also formed in it, and this switch 102 is also connected to MPU111. The power source of MPU111 is taken from the mounted dc-battery 112. Although PDA200 has the cell inside, when using it, connecting with MPU111, supply of power can be received from a dc-battery 112 through MPU111.

[0018] PDA200 has the memory and the display screen which may make travel data memorize, offers navigation information according to the control signal from the positioning data and MPU111 from the GPS sensor 110, and performs navigation actuation. Electronic chart information and the root information to the destination are included in travel data. Travel data are created based on the information and electronic chart information which are acquired from networks, such as the Internet, using a personal computer. The transit root is created by giving the destination as input, and further, way points, such as main crossings on the root, will be chosen according to the algorithm set up beforehand, if the root is determined. Travel data may be inputted from a personal computer and you may make it transmit the information beforehand memorized by ROM etc.

[0019] MPU111 supplies a control signal c1 to the GPS sensor 110, and the GPS sensor 110 receives a GPS Satellite electric wave according to a control signal c1. The GPS sensor 110 inputs the positioning data d1 based on a GPS Satellite electric wave into MPU111. MPU111 analyzes said positioning data d1 and indication signal d2 from a switch 102, and supplies a control signal c2 and the positioning data d1 to PDA200. PDA200 is started by the control signal c2, uses the positioning data d1, performs a scheduled program, and displays navigation information on a display panel. PDA200 inputs into MPU111 the condition signal d3 which shows operating state.

[0020] Next, the mounting mode of the box 100 in which said PDA200 is held is explained. It is the transverse-plane perspective view showing the mode which the anterior part side perspective view of the motor scooter in which drawing 1 attaches a box 100, and drawing 5 make PDA200 this transverse-plane perspective view, and drawing 6 made move it to the location at the time of un-using it (rotation), and, as for drawing 2 and a same sign, all show the same part. In addition, in each drawing, the windscreen 34 shows the condition of having demounted. The instrument panel (meter) 50 is built into the handle covering 33. A speedometer 51 is formed in the center of the face of a board of an instrument

panel 50, and, as for a fuel gage 52 and right-hand side, the water thermometer 53 is formed in the left-hand side, respectively.

[0021] The kill switch 56 is formed in the starting switch 55 and the top face on the transverse-plane upper case contiguous to the right-hand side of an instrument panel 50 at the hazard switch 54 and the lower berth, respectively. Moreover, the high beam / low beam switch 59 is formed in the horn switch 58 and the top face on the transverse-plane upper case contiguous to the left-hand side of an instrument panel 50 at the blinker switch 57 and the lower berth, respectively.

[0022] It is equipped with said box 100 along with the margo inferior of an instrument panel 50. The dimension and the configuration are set up so that PDA which has the memory which can store the map information used for a navigation system, and a display panel can hold this box 100. The aperture 101 and switch 102 with which clear glass or a transparence acrylic sheet was prepared so that it could keep seeing the display panel of said PDA200 held into it are formed in the box 100. As an arrow head shows a switch 102 to drawing 5 , what can be operated under the left upper right is used, and the change of the display panel of PDA200 and a vertical click are used for zooming of a map etc. for a left right-click, respectively. The field 103 in which the aperture 101 and switch 102 of a box 100 were formed is a lid, this lid 103 is opened, and desorption of PDA is performed. The knob 104 is formed in the lid 103 and locking and release of a lid 103 can be performed by rotating this knob 104. As for a knob 104, it is desirable that it can be made to carry out by the ignition key lock/unlock actuation for security.

[0023] The box 100 has the rotation shaft 105,105 jutted out over right and left, and this rotation shaft 105,105 is supported by the bearing (not shown) incorporated in the handle covering 33, respectively. When using a navigation system, the box 100 is lifted by the spring means which is not illustrated to the location (the 1st location) whose screen of PDA corresponds with the same field as the face of a board of an instrument panel 50 mostly as shown in drawing 1 , drawing 2 , and drawing 5 (it has popped up). On the other hand, when not using a navigation system, a box 100 can be depressed and it can be made to evacuate to the location (the 2nd location) where it becomes a vertical mostly, the screen 101, i.e., the aperture, of PDA. It is good for the rear face and the handle covering 33 of a box 100 to establish stop means, such as a magnetic catch, so that a box 100 may be fixed to the handle covering 33 in this evacuation location.

[0024] When making said rotation shaft 105,105 rotate a box 100 from said evacuation location (location of drawing 6) to an operating location (location of drawing 1), it is good to form the revolution damper which resists and acts on said spring means. It is because it is convenient although PDA is protected from smooth rotation of a box 100 and an oscillation of a car or vibration control of the display screen is carried out. A revolution damper can use the oil damper which enclosed oil with the package. This damper operation functions, only in case a box rotates to the 1st location, and a damper operation does not function in the rotation to the 2nd location from the 1st location. Therefore, a screen rotates gently from an evacuation location (the 2nd location) to see the GPS display screen, i.e., the display panel of PDA, and it can be made to evacuate promptly to evacuate.

[0025] Drawing 7 is the perspective view of the box 100 in which an open beam condition is shown for a lid 103. In the box 100, the junction section 107 which has the multipolar connector 106 combined with the input/output terminal of PDA200 is formed. This junction section 107 relays the signal of a switch 102 to MPU111 through a cable 108 while relaying the signal from a connector 106 to said MPU111. Desorption is free for PDA200 in a box 100 through a connector 106.

[0026] Therefore, at the time of motor-scooter entrainment, PDA200 can be connected to a connector 106 and it can incorporate as a navigation system, when an operator separates from a motor scooter, PDA200 can be separated from a connector 106 and it can sample from a box 100, and with a navigation system, it can carry independently. In this way, since PDA200 was held in the box 100 and PDA200 can be easily demounted from a motor scooter, it is convenient to use it as an address book or a dictionary without using PDA200 as an object for navigation as well as a convenient thing from a viewpoint of theft prevention etc., also when using it as multifunctional information machines and equipment. Moreover, since the connection with PDA is also held in the box 100, the effect of rain, a wind, dust, etc. is also suppressed small.

[0027] The state transition in a navigation system is explained with reference to the state transition diagram of drawing 8 , and an example (drawing 9 - drawing 14) of the display screen. In drawing 8 , receiving waiting of data is carried out as the status S0. When data are in the memory of PDA200, or when reception of data is ended normally, it shifts to the status S1. As the status S1, while carrying out receiving waiting of data further, it waits for a starting command. The title screen P1 of drawing 9 is expressed to a display panel as the statuses S0 and S1.
[0028] If a switch 102 is left-clicked as the status S1, it will shift to the status S2. The arrow-head Nabih display screen is displayed as the status S2 (refer to drawing 10). In the arrow-head Nabih display screen, the graphic N5 which indicates the reduction of the figure N4 which shows the arrow head N1 which shows the direction of a way point and the dot mark N2, the name N3 of a way point, and the ground range to a way point, and the distance N4 to a way point by the bar graph is displayed.
[0029] If a switch 102 is left-clicked as the status S2, it will shift to the status S3. A coma map Nabih screen is displayed as the status S3 (refer to drawing 11). In a coma map Nabih screen, the configuration of a way point and the arrow head N6 of a travelling direction are displayed greatly, and the direction of a way point is displayed by the small arrow head N7. If a switch 102 is left-clicked as the status S3, it shifts to status S4, and if right-clicked, it will return to the status S2. A map Nabih screen is displayed in sault TETASU S4. In this status S4, a map is immobilization.
[0030] If a switch 102 is left-clicked by status S4, it shifts to the status S5, and if right-clicked, it will return to the status S3. In addition to the display of the status 4, in sault TETASU S5, the map Nabih screen to which the transit locus was attached is displayed (refer to drawing 12). The drawing Nakaya marks N8 are a self-vehicle location and the transit direction, and the locus is displayed by the dot N9.
[0031] If a switch 102 is left-clicked as the status S5, it shifts to the status S6, and if right-clicked, it will return to status S4. In sault TETASU S6, the map Nabih screen to which only the transit locus was attached is displayed except for a map.
[0032] If a switch 102 is left-clicked as the status S6, it shifts to the status S7, and if right-clicked, it will return to the status S5. At sault TETASU S7, where a self-vehicle location is fixed, a map Nabih screen is displayed. Therefore, the screen where a map is scrolled according to transit of a self-vehicle is displayed.
[0033] If a switch 102 is left-clicked as the status S7, it shifts to the status S8, and if right-clicked, it will return to the status S6. In sault TETASU S8, the map Nabih screen to which it is in the condition that the self-vehicle location was fixed, and the transit locus was attached is displayed.
[0034] If a switch 102 is left-clicked as the status S8, it shifts to status S9, and if right-clicked, it will return to the status S7. In sault TETASU S9, the map Nabih screen to which only the transit locus was attached except for the map where a self-vehicle location is fixed is displayed.
[0035] If a switch 102 is left-clicked by status S9, it shifts to the status S10, and if right-clicked, it will return to the status S8. Arrangement of a satellite is displayed in sault TETASU S10 (refer to drawing 13). In drawing 13 , the satellite N10 in use, the satellite N11 for which it has stood by, and the satellite N12 under search are displayed with bearing.
[0036] If a switch 102 is left-clicked as the status S10, it shifts to the status S11, and if right-clicked, it will return to status S9. In sault TETASU S11, the LAT LONG which shows the location of a self-vehicle is displayed (refer to drawing 14). Bearing of the travel speed of a self-vehicle, the LAT, LONG, and a travelling direction is shown in this display screen.
[0037] If a switch 102 is left-clicked as the status S11, it will return to the status S2, and if it carries out as the status S2 and a switch 102 will be right-clicked, the statuses S3-S10 will be skipped, and it will shift to the status S11.
[0038] Although the above-mentioned state transition diagram shows the example which shifts according to actuation of a switch 102, it cannot be based on actuation of a switch 102, but can switch an arrow-head Nabih display and a coma map Nabih display based on the location of the self-vehicle to a way point. For example, when an arrow-head Nabih display is performed and it results before [400m] a way point until it results before [400m] a way point, it is switched to a coma map Nabih display from an arrow-head Nabih display. Moreover, it is a time of not going a crossing straight on, when a way

point is passed and it is 50m away, and when a car body turns to the crossing escape direction, while switching the target way point, the change to the arrow-head Nabih display from a coma map Nabih display is performed. Moreover, the way point is automatically updated, when it separates from the set-up transit root.

[0039] Then, a modification is explained. With an above-mentioned operation gestalt, a mounting beam can attach the box 100 in which PDA200 is held not only above this location but above the instrument panel 50 along with the margo inferior of an instrument panel 50. Drawing 15 is the anterior part side elevation of a motor scooter showing the box 100 prepared above the instrument panel 50, and drawing 16 is the important section expanded sectional view of drawing 15 . Moreover, drawing 17 is a sectional view when containing a box 100.

[0040] The superior lamella 60 is supported [upper part / of an instrument panel 50] by nothing and covering 61 free [rotation] with the hinge 62 in some wrap coverings 61. The upper limb of a box 100 which holds PDA200 in a reverse edge is connected with the side currently supported, the edge 62, i.e., the hinge, of a superior lamella 60, by the hinge 63. Furthermore, the sliding child 65 who fits into the rail (only one side is illustrated) 64 of two couples distributed and prepared in right and left of a car body, and slides on it is formed in the margo-inferior ends of a box 100.

[0041] By this configuration, if a superior lamella 60 is lifted from the condition that the box 100 is folded up like drawing 17 , since it is combined with the edge of a superior lamella 60 with the hinge 63, a box 100 will be lifted in connection with a superior lamella 60. On the other hand, the margo inferior of a box 100 slides on a rail 64 top through the sliding child 65, and is guided at the edge (car-body back approach) of a rail 64. In this way, as shown in drawing 15 and drawing 16 , a box 100 turns the display-panel side of PDA200 to operators, is started, and the screen of an instrument panel 50 and the display-panel side of PDA are considered as abbreviation parallel, and it will be in the condition that each display is legible. Moreover, if a superior lamella 60 is depressed pushing near the margo inferior of a box 100 with a finger from the condition of drawing 15 and drawing 16 , as shown in drawing 17 , a box 100 will be contained in covering 61, where the display-panel side of PDA200 is turned downward.

[0042] Although a box 100 opens the lid 103 supported with the hinge and was made to carry out desorption of PDA200 with the above-mentioned operation gestalt, the structure of a box 100 is not restricted to this. Drawing 18 is the perspective view showing the modification of a box 100. The opening 66 for carrying out desorption of PDA200 to the end face of box 100A is formed, and it constitutes so that a lid 67 may suit this opening 66. It is the same as that of the operation gestalt of drawing 7 to prepare the connector which connects the aperture 101 which can keep seeing the display panel of PDA held in the interior, and a switch 102 and the terminal of PDA200 in box 100A (not shown).

[0043] In using it, including PDA200 in a navigation system, a lid 67 is opened and PDA200 is inserted into box 100A from opening 66, and a lid 67 is inserted in opening 66 and it seals it. Moreover, when not using it, including PDA200 in a navigation system, a lid 67 is removed and an aperture and PDA200 are sampled for opening 66 from box 100A.

[0044] In addition, it is good for the fitting side of the lid 103 of box 100,100A explained about drawing 7 , drawing 18 , etc., a lid 67, and box 100,100A to make packing and the seal for water proof or protection against dust intervene.

[0045]

[Effect of the Invention] According to invention of claim 1 thru/or claim 3, at the time of a navigation system activity, displayed navigation information can be made legible by making the screen of a display unit meet the face of a board of the instrument panel (meter) of a car so that clearly from the above explanation. Moreover, when not using a navigation system, since it is evacuated with a schedule include angle to the face of a board of an instrument panel, the perimeter of the face of a board of an instrument panel is simplified.

[0046] Especially, in claim 2, the screen can be gently rotated according to a damper operation, and it can evacuate quickly by claim 5. In claim 4, since the desorption of a display unit becomes free, it can use as navigation equipment whose carrying is possible, and when not using, a box can be utilized as an

accessory case.

[0047] Moreover, in what displays navigation on a two-wheel barrow like claim 6, the inside of the tooth space where the circumference of a handle was restricted can be used effectively, and the meter of a car and the check of a display of navigation become easy. Since a box will rotate and a car body will be met when not using navigation in claim 7, the navigation screen is stored and it can avoid becoming obstructive by easy motion. In claim 8, since PDA which is a map information storage display means can be contained to a box, this can be effectively protected from water, dust, etc.

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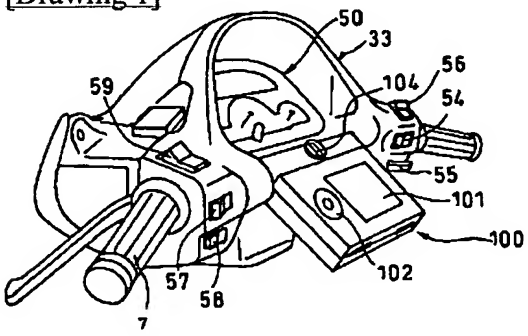
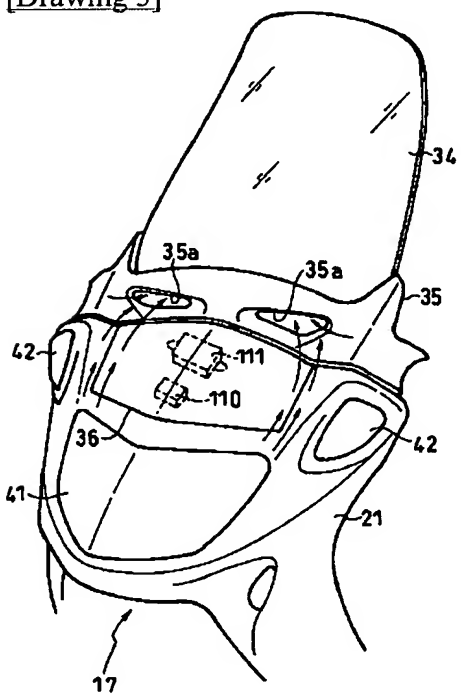
DRAWINGS

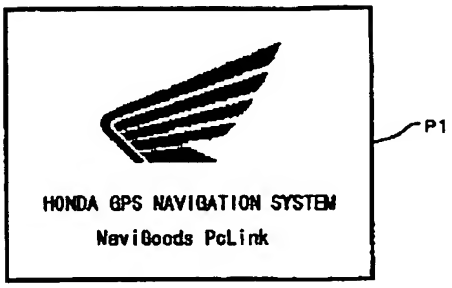
[Drawing 1]



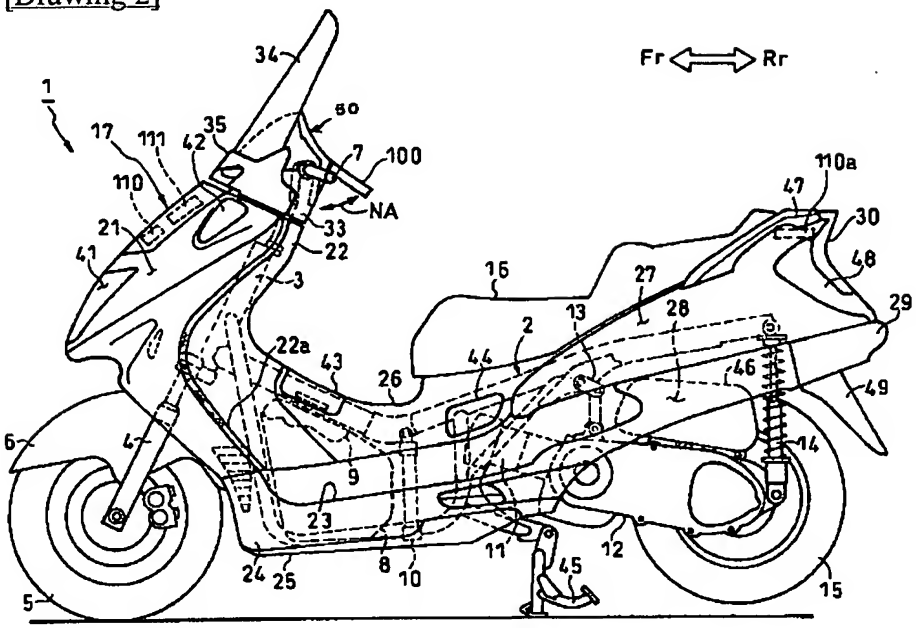
[Drawing 3]



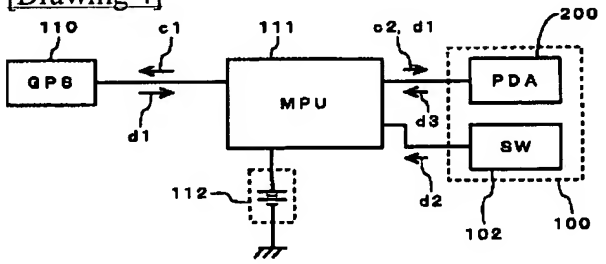
[Drawing 9]



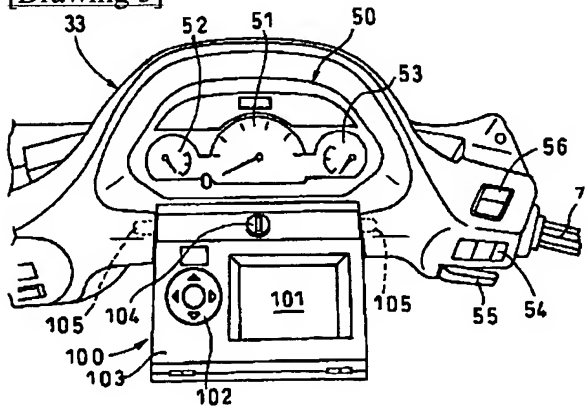
[Drawing 2]



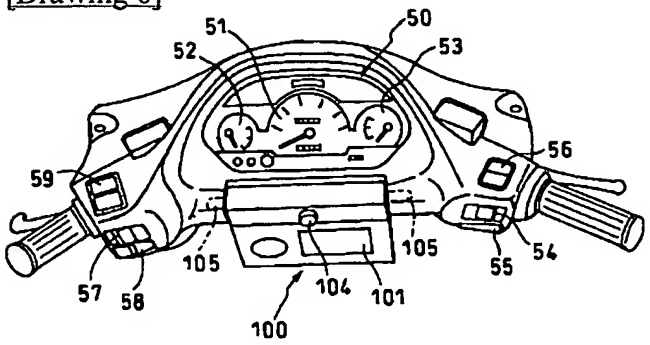
[Drawing 4]



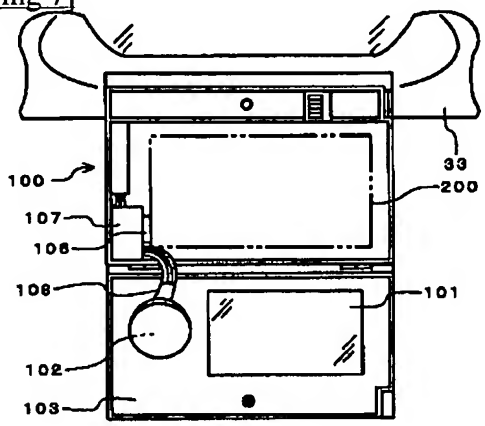
[Drawing 5]



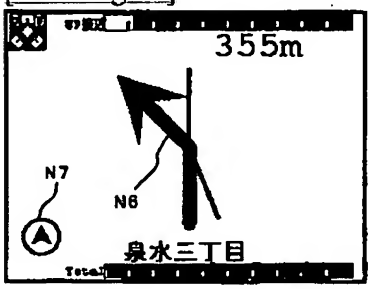
[Drawing 6]



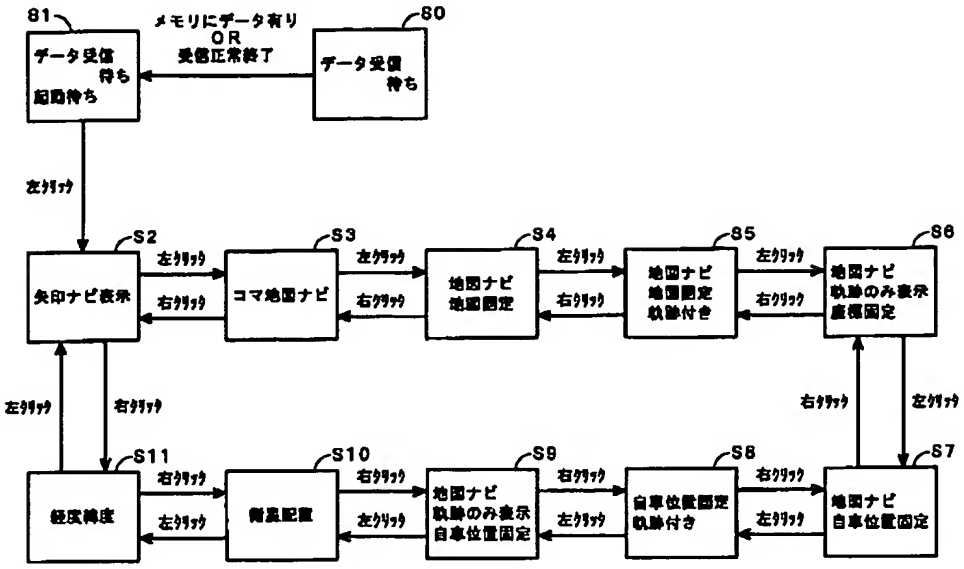
[Drawing 7]



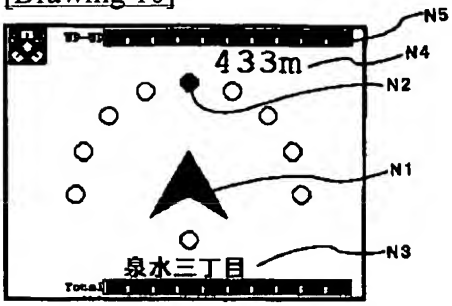
[Drawing 11]



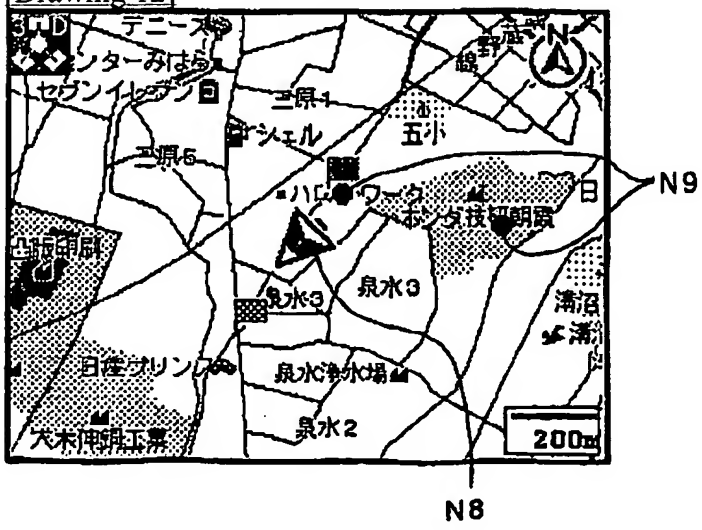
[Drawing 8]



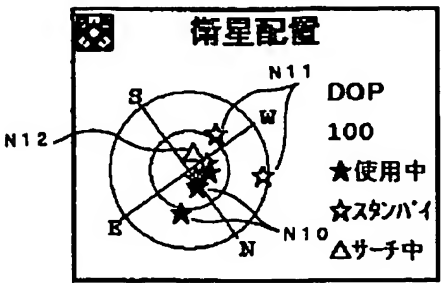
[Drawing 10]



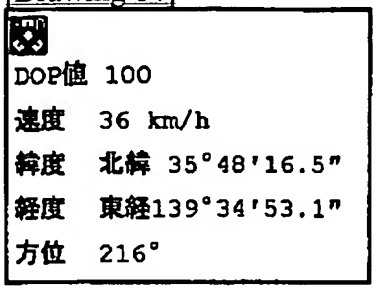
[Drawing 12]



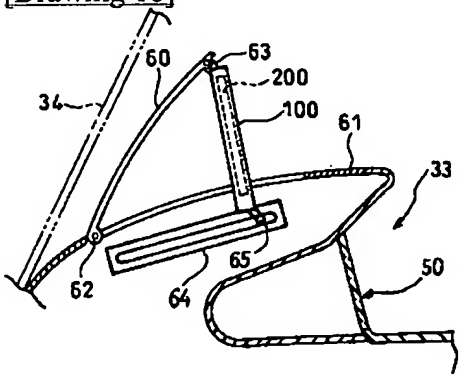
[Drawing 13]



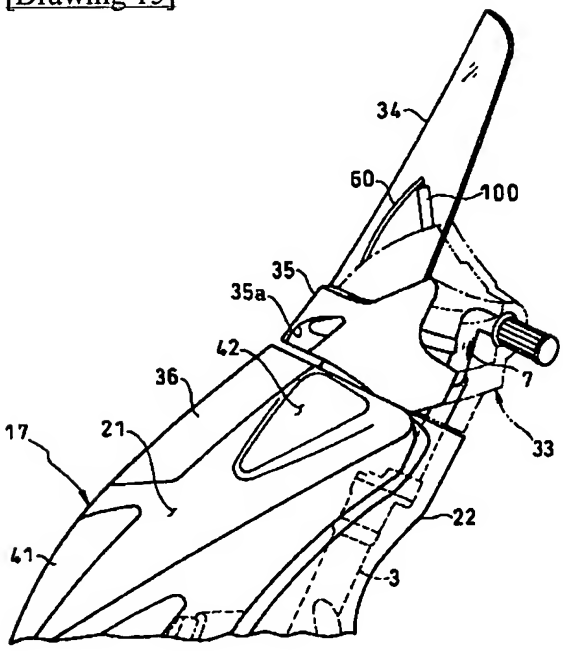
[Drawing 14]



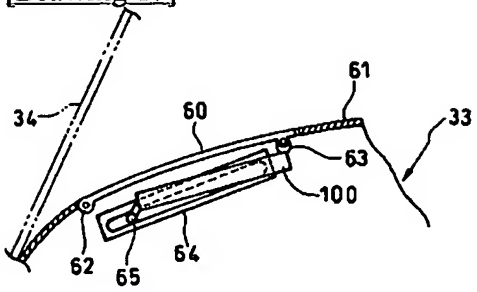
[Drawing 16]



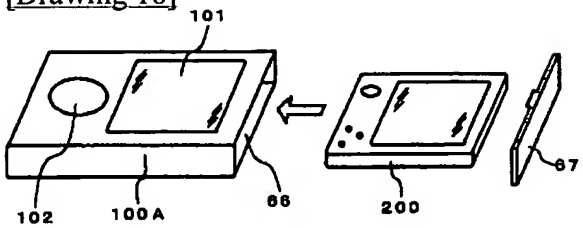
[Drawing 15]



[Drawing 17]



[Drawing 18]



[Translation done.]